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ABSTRACT

This School Research Newsletter presents the research program of the National Swedish Board of Education (NBE), as adopted by the NBE Board of Directors in June 1982. The successive decisions on decentralization taken in the educational sector since 1976 have led also to a decision to alter the thrust of the research and development work within at NBE's sphere of responsibility. Development work is now essentially the responsibility of the local school system, while NBE still retains its responsibility and resources for overall research. In its research program, NBE considers certain general principles of research policy in the Swedish system, and the consequences it has drawn from these regarding research in education. It also indicates the general bases for NBE's research planning, where the most important reorientation relates to the increasingly strong linkage between research and long-term educational planning. (Author)

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It also indicates the general bases for NBE's research planning, where the most important reorientation relates to the increasingly strong linkage between research and long-term educational planning.

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# THE RESEARCH PROGRAMME OF THE NATIONAL SWEDISH BOARD OF EDUCATION

## Introduction

For more than two decades, the National Swedish Board of Education (NBE) has had special resources at its disposal for research and development (R&D). From the beginning, NBE's R&D was closely linked to the 9-year compulsory school decided upon in 1962. The frameworks of this R&D operation were then steadily expanded, both in economic terms and in respect of content. Until 1981 great emphasis was assigned, for example in the Government Budget Proposals, to the association of R&D to day-to-day work in the schools, and, during the 1970s to such work in various types of adult education. To a large extent, the planning of R&D activities, and the setting of priorities, started from the same premises. R&D was seen as an active means of realizing educational policy and administrative decisions. Underlying this was a faith in the opportunities afforded by R&D to facilitate, or indeed render possible, the implementation of educational policy.

The planning of R&D has been based essentially on what is commonly called the "R&D model". This starts from such basic research as can be expected to provide a basis for the application of theories and methods to more or less clearly delimited educational questions. Applied research, in its turn, is expected to provide a basis for parallel or subsequently performed development work, before, finally, it is time to introduce innovations - new teaching methods, new teaching aids, modifications in the content of the subjects taught at schools, new organizational arrangements etc. - on a major scale. Despite the fact that neither research nor development work has proved submissible to this strict hiearchy, the R&D model has functioned, especially during the 70s, as a powerful steering instrument for planning.

It is not a coincidence that the R&D model has been applied as a planning instrument in Swedish educational research. The elements of centralism it has entailed in practice have had their parallels in the overall steering of the Swedish school system. The period up to 1962 was characterized by a relatively strict steering by resources. The period between 1962 and 1976, when the essential decision concerning the reforming of the internal work of the schools (referred in Swedish to the acronym SIA) was taken, was characterized mainly by steering through rules.

Following the decision on the internal work of schools made in 1975, and the further decisions consequent upon it, a steering by goals is now dominant in the compulsory system. Less and less relative weight is beeing accorded to any more detailed steering. Following a decision by Parliament in December 1981, the same is true to a large extent in the upper secondary schools. With a few exceptions, steering by goals has long been dominant in the various forms of adult education.

Another way of describing changes in the steering process would be to say that the activity has been decentralised. To an increasing extent, decisions, responsibilities and resources are being located closer to the activity itself.

As a result, the work of the central political and administrative bodies on educational issues is changing. Now that the limits are no longer set by any detailed system of rules, the degree to which goals are achieved has to be followed by other means and methods. This has led to decisions providing for a modified state school administration, and a revised thrust of educational research within NBE's sphere of responsibility. One of the basic ideas behind this altered thrust is that research should be integrated to a greater extent than previously with the long-term planning and development of the Swedish school system. This has consequences bearing upon the interpretation of certain concepts in research, the content of research, and research planning.

## Certain principles of research policy

Swedish research policy, and the debate on that policy, have been markedly influenced during the 1970s by a long succession of public inquiries. The fact that we are now trying in Sweden to create a more coherent research policy reflects a concern not only to economise with our limited material and human resources, but also to clarify the potential of research for "community work" in the broadest sense. In this way the limits for what can be achieved by research are also indicated.

The changes decided upon as regards research in the school sector cannot be seen in isolation from research policy as a whole. However, the establishment over the long term of a coherent Swedish policy on research does not imply a demand, nor even a desire, for complete uniformity over the entire research field. By the terms of a Government Bill in 1981 concerning research etc., each field of research and sector of society should be allowed to develop within its respective environment. There is, however, one strong common element, in that the universities should be the main bodies dealing with research.

## The concept of "sectors" and "sectoral research"

The term "sector" is used in various ways within the public administration. A sector relates to a policy area, for example, that of educational policy. The responsibility for an area in this sense lies at the political level, mainly within the specialised ministry responsible. The field of educational policy covers the school sector and the college and university sector, each with their central administrative authority (or "sectoral body"), NBE and the National Swedish Board of Universities and Colleges (NBUC).

One of the instruments a sectoral body may have at its disposal is resources for research and development. By the terms of a Parliamentary decision taken in 1979 on the basis of proposals put forward by the 1972 Commission on Research Councils, sectoral bodies should have R&D functions at their disposal for the work of developing, modifying and renewing their particular sector. The responsibility of the sectoral body covers the setting of priorities for research, planning, follow-up, and the exploitation of research, plus information on research and its results. This responsibility is also to

be manifested in long-term programmes, which it is intended should form parts of a coherent overall research programme for Sweden as a whole. The guidelines for such a programme are laid down in the Government Bill of 1981.

So much by way of a technical description of sectoral research, indicating how it is financed and initiated. A question of much greater interest to consider is whether or not sectoral research constitutes a special type of research.

In the literature on research and research planning, and in the debate on research policy, both in Sweden and abroad, a number of concepts are used to reflect a distinction between such research as has traditionally been considered one of the main tasks of the universities, and research initiated outside the universities. The Commission on Research Councils, in its initial report entitled "Research Councils" (Forskningsråd), introduced the two concepts "intra-disciplinary significance" and "social relevance". These terms were used to designate two main emphases in a research task. In the former case, the main emphasis is on developing basic theories and methods within a scientific discipline, where the application or use of results is not usually, or at least not necessarily, immediately in view. Research with "social relevance", on the other hand, has an application in view. The questions on which a piece of research is based are such that one expects some form of "answer", a possibility of applying results for a specific, determined purpose, or - since research is impartial - information that the result is unusable.

Research of intra-disciplinary significance is usally equated with basic research, while research with social relevance is equated with applied research.

More recently, the Research Cooperation Committee in its report "The universities in collaboration on R&D" (Högskolan i F&U-samverkan), has introduced the terms "intra-scientifically motivated" and "sectorally motivated" research. Here the motive (initiative and financing) provides a basis for the distinction. However, the link between, on the one hand, intra-scientifically motivated and basic research, and, on the other, sectorally motivated and applied research remains.

These definitions of research concepts, and linkages between the motives and financing of research and the character of that research, have not always been successful. They have led to sectoral research being regarded as almost exclusively applied research; of no importance for the basic development of theories and methods in the scientific disciplines used by the sectoral bodies.

The research initiated by sectoral bodies is often decision-oriented. This means that research problems are formulated and defined from the standpoint of a need for some basis on which to make a decision on certain specific questions. This, however, does not imply that such research is always, or only can be, applied or application-oriented, or, even more important, that it lacks importance for the scientific development of a discipline. Such a view would imply that the scientific basis on which sectoral research rests develops independently of the social and sectoral problems to which its theories and methods are to be applied.

Sectoral research should thus not be seen as a special type of research: it is part of research as a whole. On the other hand, certain (mainly "external") conditions can be said to apply more to sectoral, which is to say commissioned, research than to "free" research. The Government Bill of 1981 concerning Research etc. deals fairly exhaustively with different concepts in research. The conditions applying to sectoral research are summed up there as follows (the term "sectoral research" here being substituted for the term "applied research" used in the Bill):

/Sectoral/ "research is often multi- or cross-disciplinary, which means that researchers with different scientific traditions must learn to understand each others' languages, and interest themselves in new approaches. The thrust of such research is determined in collaboration with a client, and must be adapted to his problems and his need of a basis for decisions. Such research must be guided not only by intra-scientific criteria but also by a striving to understand the client's problems and translate them into researchable tasks. Sectoral research also makes special demands on the ability of a client to analyse his problems together with the researchers, and to avail himself of their results. A joint planning of research is necessary in order for results to be /used/as a basis for measures and decisions. For an all-comprehensive collaboration to be achieved, a learning process is required on the part of many people involved. Collaboration must be adapted to the specific circumstances in hand, and should not be forced into standardised forms".

## The general basis of NBE's research programme

### Research

A Government Bill concerning Educational Research and Staff Development, and the decision of Parliament arising from it, lay down the most important premisses governing the general thrust of educational research, and the importance that should be assigned to research in developing our school system:

"Research into the education system is of central importance for long-term, overall planning. Sectoral research must, therefore, be planned, and its priorities set in such a way that it provides as satisfactory a basis as possible for decisions by central government when it has to consider alternative courses of action. At the same time, I would emphasize the importance of there being a place also for a research that freely reviews its goals and prerequisites, which critically scrutinises current activities, and which can lead to new and sometimes also unconventional proposals. In this way research will play a role not only by throwing light on problems, but also for our understanding of what constitutes a problem... More than anything, it is a balance between free, critical research and research related to planning within the sector that will create the best possible conditions for active educational planning and educational policy".

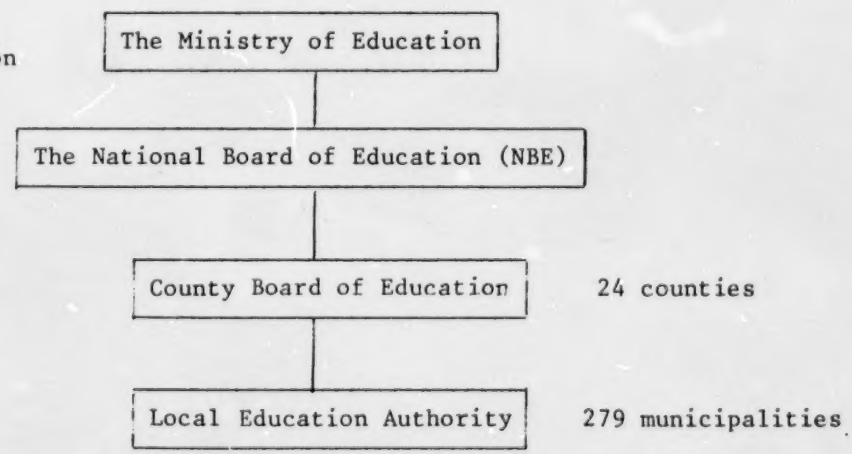
The decision of Parliament on the basis of a Government Bill in 1980 thus implies a shift in attitude towards the role and thrust of research. Significant premisses are now the role of research as an instrument of long-term planning, and an emphasis on elements of critical testing and scrutiny. The previously strict requirements for linkage between research and the day-to-day problems of the schools have been toned down.

"It has previously been emphasized in various contexts, for example in the Government Budget Proposals for 1972, that R&D should start from the problems encountered by students and teachers in day-to-day life in the schools. I would emphasize that this is a given starting-point for development work. Research, however, must also be seen from the standpoint of long-term planning, and take its point of departure to a large extent in the problems involved by the alternative choices raised in planning. It is necessary, in my opinion, to emphasize the importance of research for active educational planning. There is a risk, otherwise, of research being regarded too exclusively as a necessary condition for development work".

## Central development work

By the decisicn of Parliament, a large part of the responsibility and resources for development work are being transferred to the County Boards of Education and municipalities. NBE, however, in its central development work has to assume a special responsibility for those fields in which the County Boards of Education are unable to take responsibility, or for which they are not suited. Small target groups will always require special support. Another aspect of this central development work is various kinds of experimental activity prior to major changes in different parts of the education system.

Figure 1.
The School Administration




NBE is the supervising authority for adult education and the Folk High Schools. These forms of education do not benefit from the state resources assigned to municipal authorities. NBE will therefore continue even in the future to have funds at its disposal for development work within the Folk High Schools and educational associations.

Within the individual municipality, the handicapped often constitute small target groups for which central coordinated inputs are required. NBE, therefore, continues to bear the responsibility for development work in respect of various classes of handicapped persons. Essential aspects of this development work have to date been the production of text-books and other teaching aids, and the follow-up of curricula for the various special schools.

A third field in which a central responsibility for development work is necessary relates to immigrants and other national minorities. Here, again, much of the development work performed has related to text-books and other teaching aids in both child and adult education.

Deliberations on issues requiring central development work must be included as an aspect of research planning, and the content of development work must be adapted to the needs that arise. However, the three areas here mentioned are likely to remain topical for many years to come.

NBE thus bears the responsibility for the planning, follow-up, coordination and financing of central development work. Such work can be implemented either within NBE or, as will probably become increasingly common, be assigned to various providers of adult education, to the schools and to other organizations.

## Information on R&D

NBE's responsibility for information on R&D has been reinforced by the changes decided upon in the content and steering of such work. The clearer linkage between research and long-term planning entails an extension of the concepts "R&D information" and "responsibility for information". There will be more target groups for R&D information and a wider spread of information will be required. Printed information has to be supplemented with other forms of dissemination. Information on R&D must be planned jointly with NBE's overall activity information. NBE also has a responsibility for seeing that information of a general character from local development work is gathered and disseminated.

NBE's responsibility for information on R&D covers the planning of content, assistance with the gathering of information, production within NBE and in consultation with publishers, dissemination, consultation, and coordination vis-à-vis research institutions and other authorities and organizations with a responsibility for information. Information inputs are financed by funds from NBE's research grant.

## Regional and local development work

As already mentioned, the development work will in future be to a large extent initiated and performed locally and regionally. Work is to be based on practical everyday life in the schools, and will constitute as far as possible a natural element in their ongoing activities. With this, the previous direct linkage in NBE between research and development work will largely disappear. A linkage can

and should be maintained through the joint planning activity for NbE and the County Boards of Education, and the experiences and results acquired in local and regional development work thus have their given place in NBE's research planning. In practice this means that the connection between research and development will now be the reverse of that previously pertaining: development work will both provide a starting-point for research, and be performed as a consequence of research.

Even if NBE's direct responsibility for the planning and realisation of local development work is thus disappearing, NBE's responsibility for coordinating the follow-up of results is important. In consultation with the County Boards of Education, NBE will be building up contacts with, and channels to, local and regional development work, so that it can be taken into account in research planning.

## Some premisses relating to the content of research

Various tendencies and declarations of political intent in our society find embodiment in ambitions and intentions relating to social policy, family policy, penal policy etc., and policy in education, as reflected in guidelines for decisions. Views on education, as related to other sectors of society, become educational policy and policy on the schools in particular. What is to apply to the schools is then codified in, for example, curricula and systems of rules.

NBE's main task is to produce a basis for central government decisions concerning curricula and systems of rules for school activities, and to administrate, stimulate and control those activities in accordance with current objectives and rules.

To do this, NBE has to analyse and interpret tendencies in society - i.e. social, economic, political tendencies etc. - and statements of political policy, so that it can submit proposals both for revisions and for the production of new curricula and systems of rules.

NBE's interpretative task is essential in this context. When Parliament and central Government have established a new curriculum, with an allied system of rules, it is NBE's primary task to ensure by various measures that the schools operate in such a way, and with such means, that the intentions underlying these curricula and systems are realised. It is also the task of NBE to study the consequences of new curricula and systems of rules.

Curricula and systems of rules thus lay down the frameworks of activity in child and adult education. The free play for action is determined also in other ways, for example via groups representing in practise various social, economic, political and religious interests and values. Our society is also brought up by traditions and norms with an historical background. Interests, value judgements and norms exercise an effect not only directly, but also because the society in which they occur is the context in which child and adult education take place, and from which both the staff and students stem. Such methods and working approaches as NBE may find reason to emphasize through its regulations and commentaries are dependent for their function on the context in which they will be applied. Similarly, the consequences

of the activity cannot without detriment be studied and interpreted in isolation from the context in which knowledge, skills, and attitudes acquire their meaning, i.e. that in which they correspond to express needs and expectations, and become means of understanding and handling a reality.

The knowledge NBE requires in order to carry out its tasks is thus of two kinds. On the one hand, a knowledge is needed for use in implementing reforms and decisions ("instrumental knowledge"). Such knowledge relates to methods, means and working approaches that will make it possible to realise the intentions of educational policy: it also, however, relates to how proposals for curricula and rules are drafted. It is thus a question of a knowledge that can for the most part be translated into practice, either in day-to-day life in the schools or in their administration.

In addition, a knowledge is required that it is impossible to translate directly into action, i.e. that does not immediately indicate suitable parts along which the schools should develop. It is necessary as a basis for NBE's work of interpretation, and the testing and development of new methods and working approaches. It increases our understanding of the circumstances influencing activities in the schools. Obviously, such cognitive knowledge is also instrumental insofar as it is used. Its use, however, is less directly tied to specific "practical" questions.

Part of this cognitive knowledge is that which NBE can acquire by what we term "state-of-knowledge surveys". These usually consist of run-throughs and analyses of previous scientific production. They can be of major importance, provided they include an account of the criteria used in both selection and interpretation. NBE's work on long-term planning accentuates the need of this sort of knowledge in order to understand a given situation, and to arrive at a more reliable judgement of the consequences of a given measure in the long-term perspective. A research programme in support of NBE's long-term planning task must have a clear theoretical anchorage if it is to contribute to understanding.

The broader frameworks set for NBE's research mean that the production of knowledge which NBE is required to initiate and support is no longer tied exclusively to the research discipline of pedagogics. Not only political science, economics, sociology and human geography, but also psychology, medicine, the humanities and the natural sciences are here involved. There is reason, however, to emphasize that the research in question must be school-relevant. It must, in other words, be possible to relate its results back to teaching, to the benefit of work in the schools.

## Content

### Introduction

One of the most important tasks of research planning is to make the necessary delimitations between researchable or research-worthy questions and those that can be regarded as belonging to the school administration's planning at large. It has previously proved difficult

at times to distinguish between research and development. The stronger linkage between research and long-term planning may produce similar problems of separation. We must try to distinguish between what can be termed the ongoing gathering of information as an aspect of long-term planning and the follow-up of teaching activities, and the sort of information gathering that requires research inputs. The connection between these two activities can be expressed most simply by saying that research provides a basis for what should be included in an ongoing information-gathering process, which - when this basis becomes available - will be integrated in current work.

The definitions of content made below relate to NBE's entire sphere of activity. At any given time, a high proportion of research will have its emphasis in a particular type of school, or type of teaching. The long-term aspect, however, necessarily implies that research be planned with a view to continuity. The responsibility of society for education always relates ultimately to individuals. Measures taken in a given type of school, or type of teaching, and with a given age group, will always have repercussions on subsequent forms of schooling and teaching, and thus on subsequent age levels. We can say that the NBE sector is concerned in practice with every individual from school start until a fairly advanced age. The guiding principle in NBE's research programme must therefore be that it should be built up and structured so as to take into account both the type-specific and the general.

For natural reasons, sectoral research is strongly geared to evaluation in the broad sense, in that its purpose is to provide a basis for decisions as to how activities in the sector can best be developed in the desired direction. It should also, however, look at new alternatives, and not just study those already in existence. The relationship between a goal-related teaching activity and the research associated with it thus becomes a two-way process: the steering by goals leaves free play for alternative paths to reach these; research, meanwhile, has to evaluate these paths and initiate new ones.

The priorities between areas set in the Government Bill of 1980 can be described in terms of an evaluation of reforms. The 1970s saw a rolling programme of reform in all types of education in the NBE sector. Further reforms may be decided during the 1980s, for example in the upper secondary school, in municipal adult education, and in labour market training. The 1980s, however, will also be a decade in which reforms are implemented in practice.

The development of the school system is part of social development as a whole. Follow-up and evaluation can thus never relate to the schools as an isolated phenomenon. It is, therefore, necessary to analyse how different social phenomena affect the conditions under which the schools work. Given the broadening of activities in, above all, the cumpulsory school to which such emphasis has been accorded in recent years, this is not without its problems. The school as an institution does not exist by accident. For centuries, education and "purposeful influence" have been taken to require a special institution, the school, which to perform its task must be allowed to work on its own terms. Some of these terms are unique, and must remain so. When demands are raised for the integration of our schools with the community at large, it is easily forgotten that there is a point beyond which the school as a social and unique institution risks losing its identity. All educational questions are social questions; but not all social questions are educational questions.

Areas of research

A general programme for educational research can be built up around teaching itself, and its components. Another way of structuring such a programme is to take the social perspective as a starting-point. In that educational research is now to be linked more clearly to planning issues, the latter seems the more logical path. With this, the sequence to be used in describing areas of research is also more or less given. A general programme indicates the main thrusts in a number of central areas of research. In the budget statements, it is stated every year in concrete terms how NBE has chosen to attack different problems in its research and central development work. The descriptions of content given below indicate these general areas of research, and the respective inputs on which NBE finds it important to concentrate. The priorities thus set also indicate the main thrust during the coming 5-year period.

On a very general, but at the same time entirely central plane, educational research must be concerned with the effects of education on the individual and society.

In the compulsory school, all individuals must be given the basis of knowledge and skills necessary for an active life in the society of today and tomorrow. However, this knowledge and these skills must also be adequate in the sense that in principle no roads should be closed to any individual after Grade 9, whether to continued education, gainful employment, or the alternation of work with studies. Owing to structural changes in Sweden, the options actually open to individuals (education or work) after compulsory schooling have been very radically curtailed. Society's responsibility for its students is expressed in the principle of "training or work" after compulsory schooling up to the age of 18. In practice, the alternative that dominates is training. As a result, the upper secondary school nowadays hardly retains its character of a voluntary school. The theoretical and actual options that are to be offered in the upper secondary school and other (educational) alternatives must, therefore, be decided in a constant balancing act between, on the one hand, the needs, desires and capacity of the individual, and, on the other, the needs of society and its capacity to offer meaningful training and work.

It is not only the young who are affected by these structural changes. Labour market training is an important instrument of labour-market and educational policy for groups beyond the age of child education. The same applies to municipal adult education, where there is a clear emphasis on educationally disadvantaged groups.

These general circumstances, which are related in a high degree to recurrent education, both as a principle and in practical terms, afford a very broad spectrum for research, which has to be based on many different scientific disciplines.

Multi-disciplinarity is also necessary in that educational policy is determined in relation to other sectors of society. We have here a complicated pattern of relationships, many of which are unknown or concealed. One important question is how far education

shapes society, and how far our society at large shapes education. Above all for compulsory education, an increased knowledge of such mutual connections when determining educational policy is decisive for the content of teaching, and for determining what should be the basic core of the school system, and its teaching, on which alternatives can be constructed.

On the basis of this general framework, it is possible to define a number of areas of research.

A self-evident consequence of the social perspective is a need of research into the interplay between education, the labour market and working life.

The relationships between the school and working life can be studied from several aspects. If we regard the closer bond between the school and working life as a reflection of central government's policy of reform, the obvious approach is to start from the idea of the reform and investigate above all how the reform introduced seeps down into the school system, and what hinders or complicates its implementation. Another approach will be to start from the school as an institution, and to study it and its environment with a view to establishing in more detail what makes reforms possible, and how social policy is shaped by a number of decisions at levels closer to the school. In both these types of study, we can also discern the "pedagogisation" or "schoolification" that takes place when one tries to communicate a reality outside the school system in a form appropriate to the school. We can thus distinguish here between two basically different ways of formulating questions, namely "Why does not a reform have the impact intended?" and "What is it that causes some change actually to occur?".

Both of these approaches are represented in the research taking place, which is concerned with both how public policy is formulated and how it is implemented.

In future research into the school and working life there is a need for both experimental activities, with the associated development work, and a more long-term acquisition of knowledge. The questions of particular interest arising in the latter case relate precisely to the "pedagogisation" of labour market issues when they are institutionalized in the school system. Another field in which knowledge is urgently required relates to the definition of specifically educational problems. There are tendencies, for example, to see unemployment among young people as an educational problem, in spite of the fact that it is mainly a question of insufficient vacancies owing to structural transformation. As suggested above, not all questions relating to the separation of the schools from production and working life, and the consequences of this, are purely educational problems.

The schools, the labour market and working life as an area of research are intimately bound up with another field, namely recurrent education and lifelong learning. One of the strongest original motives for recurrent education was economic. This still holds, but there are now also strong social motives to be considered. The structuralization of content and form, i.e. the alternatives that should be open to individ-

uals, is thus also dependent on what common basis people have acquired and are acquiring from, above all, the compulsory school. Also, social changes and the development of knowledge mean that the knowledge imparted by the school system of yesterday and today can prove inadequate, and thus require constant supplementation.

A 1975 Government Bill concerning the university system establishes that future planning of the education system should assume recurrent education as a standard model for the educational planning of the individual. The decision of Parliament is not restricted to university education but relates to the education system as a whole. It is emphasized that adult education plays a central role in any system of recurrent education. This presupposes close coordination between educational policy and other sectors of society, above all labour market and social policy. One central task for NBE, in producing a basis for the formulation of policy, will therefore be to take into account the requirements that must be met if the education system is to be radically transformed in the direction of lifelong learning.

If the idea of lifelong learning and recurrent education is accepted, the equality aspect has to be considered in the perspective of a life cycle. We have to take into account both the effects of learning at school and in the family, and the informal schooling that occurs during adulthood. One basic question that requires both theoretical development and empirical data is under what conditions the propensity to participate in adult education alters.

The search of individuals, above all adults, for knowledge, is not necessarily related to organized studies. An alternative to recurrent education of the school type, and one that is being accorded increased emphasis in the debate on recurrent education, is a self-governed learning process on the part of adults. The emphasis here is on the active search of adults for knowledge, and the pattern taken by this search in different groups in and outside organized education. Participation in adult education, as a part of lifelong learning, is further related to i) previous experience of, for example, child education, and ii) the practical and economic opportunities and terms provided for the alternation of work with studies. One important field of research is the effect of reforms in the support provided for adult studies on the recruitment of adult students.

Current and future structural changes in Swedish society are hitting above all those groups with little or no formal vocational training. A question related to that of limited occupational competency is how employees regard their working duties, how they shape their occupational role, and how they see their opportunities to expand that role. This question, in its turn, is closely related to individual views on education, and on the value of different kinds of knowledge.

Recurrent education requires a coherent strategy, in which the entire education system can be utilized to achieve the overriding aims of educational policy. Questions that arise here include, for example, "What alternatives are open to the individual?" and "How are the aggregate resources of the educational system being utilized?". We also have to consider the connection between child and adult education.

This implies studying child education also from the standpoint of study opportunities during adulthood. How well considered are the curricula and syllabuses of the compulsory and upper secondary school in respect of i) opportunities for study later in life, and ii) alternation between schooling and gainful employment?

The questions raised here lead us into another central area of research, namely curricula and syllabuses.

Swedish Society's most important instrument for the steering of child education is to be found in the curricula. These are used together and parallel with other means of steering education towards the goals established by central government. Society tries to influence life in the schools by i) laying down rules for the division into subjects and the allocation of time, ii) indicating the required character of teaching. The influence that is thus assumed to be exerted through the curricula is coupled in various ways to a corresponding influence via teacher training, in-service training and development work.

The import of this influence, and its effect, have been little studied. Nor are the relationships between different types of influence at all clear. These questions are of vital interest in the perspective of the curriculum as an instrument of change. Conflicts and contradictions between both different parts of the curricula, and between the curricula and other means of steering, probably contribute to the frequently observed discrepancy between the objectives laid down in the curricula and the realities of school life.

Demands for changes in subject content and teaching methods are often presented as the natural consequences of scientific advances in different subjects, including pedagogics and psychology. It is necessary that changes of different kinds should be tested and evaluated by research and development work. A necessary condition for any such evaluation is an analysis of why given demands arise at a given moment of time, and what changes in both ideology and actual material terms in our society they represent. This in its turn demands some form of overriding curricular theory.

To widen, in this way, the basis of evaluations as part of a reformative process, it is necessary to extend our knowledge of the relationships between society and demands regarding knowledge in the public education system. Such an acquisition of knowledge will involve both comparative studies of education in different countries, and historical studies of how various demands in respect of the curricula have emerged and taken shape. The influences of education systems and policies in other countries should be charted.

Among the comparative studies that have enabled us to make international comparisons as to the content of curricula, standards of knowledge, and attitudes are the investigations completed and under way within the project of the International Association for the Evaluation of Educational Achievement (IEA). Through these studies of the same age groups at different points of time, it is possible to investigate the effect of intervening educational reforms and revisions of curricula. A 10-year follow-up is now being carried out in respect of mathematics and general science.

Research on the curricula both presupposes and leads to a research requirement regarding the subject matter taught.

Great emphasis in both research and development has traditionally been assigned to didactics, i.e. to actual school subjects and their teaching. There is a difference in emphasis here between child and adult education. In the former the emphasis has been on subject didactics, in the latter on working procedures. The element of development work has been greater in adult than in child education.

Teaching and teaching subjects are closely linked with the text-books and other teaching aids used. The steering role played by teaching aids has often been observed, and it has been suggested that measures are necessary to neutralise the supposed and actual negative effects of teaching aids both on what is taught, and how it is taught.

During the 1970s, an interest in the formation of concepts in different subjects emerged in Swedish educational research. It is hardly a coincidence that this started in mathematics and the natural sciences. Rightly or wrongly, the nature of these subjects is considered such as to render it possible, indeed necessary, to structure teaching in a more or less hierarchical way. Even in the natural sciences, however, the formation of concepts barely takes place in any absolute accordance with laws, or independently of influences outside the teaching situation as such. Syllabuses, recommendations on method, commentaries and teaching aids all require as a basis a deeper knowledge and understanding of how and where concepts are formed, and an identification of central concepts. The boundaries between subjects are also much more fluid today. The principle of block subjects entails subject integration. This in its term presupposes a knowledge of what can and should be integrated.

Research and the acquisition of knowledge regarding teaching subjects and methods thus indeed have many facets. These include the structure and content of individual subjects, the connections between different subject contents within the framework of block subjects, and the structurisation of teaching as regards the methods and aids, all with due allowance to individual aptitudes for learning, and the necessary knowledge and skills to be imparted by the school. This latter is related to the question, topical in all teaching, of individual differences and the learning/teaching process.

Individual differences can be measured and described at different levels of abstraction, and on different assumptions as to the generalizability of individual differences over time and subject matter. In the traditional research of differential psychology, individual differences are seen as reflecting more permanent properties, to which a high degree of generality is assigned. The basic thinking in this approach is reasonable enough, but its lack of any concrete anchorage in content leads to problems when interpreting the import of the different dimensions af ability we can measure. An alternative and supplement to such traditional differential-psychological research is a research that tries directly to describe process differences between students with regard to the learning and problem-solving tasks that occur at school. Less strict assumptions are here made as to the stability and generality of individual differences, and descriptions are for the most part made with immediate reference to a concrete content. The concrete anchorage of this approach to de-

scribing individual differences affords good opportunities to contribute to the interpretation of more general dimensions of ability. Such research is basic to all educational research, whether it relates to subjects or to learning and teaching. Insofar as the term "basic research" can be applied at all in the behavioral and social sciences, this field would appear to be in that category.

Questions concerning teaching in the schools, and teaching subjects, are closely related both to curricula and syllabuses, and to the concept of basic skills. The school system, above all the compulsory system, has to provide the necessary, and thus also adequate, knowledge for an active life in the community also for those who choose to terminate their formal schooling after Grade 9. The concept of "basic skills" is naturally not uncomplex. We have both to identify the necessary and persisting (general, independent of time) knowledge and skills, and to guarantee that no students leave the compulsory school without them. Research in the subject of basic skills must therefore i) solve the purely methodological questions, and ii) contribute to clarification of the concept "basic skills".

The actual quality of teaching is in the foreground of the general and political debate, and in this context the concept of "basic skills" acquires particular importance. One of the most important tasks of the school system is to impart knowledge and skills. This task is the subject of constant discussion and many people in Sweden argue that the changes undergone by the school system as a result of new reforms have led to a neglect of its duties in this respect. This debate is by no means unique to Sweden. Such discussion has perhaps found its clearest expression in the USA, where the development of knowledge and skills in different subjects has been followed for many years within the framework of a national programme. A corresponding process is taking place in England. In Sweden, attempts to throw light on problems in the school system, including the knowledge and skills imparted, have so far been confined mainly to the general discussion, and to reports in the press and other mass media. It has been maintained in numerous contributions to the debate in recent years that many students leaving the compulsory school lack, for example, basic skills in reading, writing and arithmetic. A more thorough description and analysis of the extent to which the goals of imparting knowledge and skills has been neglected in the school system is unavailable. This shortcoming is due not to any lack of information as such, but to its not having been systematically used. The setting up of systematic information - gathering in respect of knowledge and skills - is a task for research, while analyses of results, and such measures as may be suggested by such analyses, are one of the most important tasks of the state school administration.

However, knowledge and skills can never be seen in isolation either from the tasks of the school system as a whole, or from overall social development. This completes the circle, and brings us back more directly to the social perspective. What happens in society as a whole happens also in the school system, or has its repercussions there. The feedback to society thus has its own logic.

Both child and adult education function within frameworks set by society, namely certain goals, an overriding system of rules, and various economic constraints. Our entire educational system is in a

phase of ongoing decentralization. The differences between the earlier steering by resources and rules, and the present emphasis on steering by goals, are very marked. These concepts, however, are dual, with, on the one hand, the resources, the rules and the goals and, on the other hand, the steering process. Given the objectives set as regards equality, which involve uniformity and parity of value, and the concern of adult education with cultural redistribution, increased decentralization will constitute, hopefully, an instrument by which we shall better achieve the overriding aims of our educational policy.

The decentralization process is not absolute. Steering by goals by no means implies lesser demands for evaluation, even if these demands may differ to some extent from those posed by steering through resources and rules. At the same time, decentralization constitutes in itself an instrument for the better achievement of goals in an education system with unchanged but to some extent redisposed resources. The evaluation must thus relate to whether the balance between central regulation and local independence is the one that best promotes the realization of goals, or whether a shift in this balance in one or the other direction is required for a better achievement of objectives.

There is reason here to refer back to our previous discussion of the distinction between what should be regarded as an issue for research, and what properly belongs to the ongoing work of the state school administration. The changes made in Swedish education are in many respects radical. They are also interesting from the standpoint of research, and thus "researchable" in the true sense. Since decentralization is a general feature of Swedish social development, channels are opening to scientific disciplines, and research fronts within such disciplines, that have hitherto been little used in Swedish educational research. Questions relating to the school system's efficiency have not previously been illuminated to any great extent by the economic disciplines; or, to put it more accurately, educational research has not employed those disciplines to any great extent. This can to some extent be ascribed to the fact that these disciplines have worked with theoretical constructions of no self-evident relevance to the school system. However, educational economics relates not only to education as an investment, but also to the efficiency of educational processes in terms of inputs (sacrifices, costs) and outputs (results). Attempts are now being made in this branch of research to develop a knowledge of the problems of resource distribution at the school and classroom level, research that is very much in demand in today's education system.

Decentralization has led to the local school acquiring new instruments for the achievement of goals, instruments that were previously at the disposal mainly of central bodies. The changes decided with regard to in-service training and staff development are creating opportunities for an interplay between universities and local development in the schools. The areas of knowledge covered by the universities, and their interests, do not necessarily coincide with those of the schools. The aims of the two systems can conflict. Such conflicts, however, need not be seen as a negative factor; on the contrary, they can lead to fruitful analyses of the interplay between different parts of the Swedish educational system as a whole.

The development of our schools, as reflected in their day-to-day activities, is very much the responsibility of the local bodies concerned. The resources that have been switched from central to local level are designed to broaden the frameworks of local development work. However, the financial resources allocated are a means of facilitating a locally established development. Experience to date of the interplay between financial resources and development work suggests a certain risk of centralization at the local level as regards participation in - and responsibility for - development work. When a decision was taken on "development blocks" in the early 1960s, (meaning shared responsibility for central and local authorities as regards initiating and financing local development activities) the concern was to set a wind of change sweeping across the country. That this never happened in the local schools and authorities taking part says less about those concerned than about the impossibility of instigating development work simply by assigning resources. However, the economic redistribution that has now taken place, and the opportunities and obligations assigned to local school systems, differ in character from the system of development blocks. Their responsibility and participation are now much more pronounced. After all, the conditions and procedures of development work, educational change and innovation on the local level constitute an important field of research. It must involve the factor already indicated, namely that development work, and the results and experiences to which it leads, must be capable of providing a starting-point for research rather than being simply, or indeed primarily, a consequence of research.

All the areas of research above mentioned, which start primarly from changes in the Swedish education system, could also, with some simplification, be summarized under the heading "the school system as an organization". The organization of our schools is characterized by great complexity. Its functional and social structure, its lines of authority etc., are so multi-facetted that one can fairly claim it to be one of the most complex organizations in our society. Studies of the school system in the organizational perspective are designed to make possible an increased understanding of the school as a socially determined phenomenon, which means, among other things, that studies of the school system as an organization must necessarily involve an overall perspective.

Finally, three important comments must be appended to this description of the general thrust of educational research. First, no groups have so far been specifically mentioned, except for the comments made regarding specific types of education. Groups, however, do exist in several specific senses. Two in particular should be underlined. Special conditions and difficulties exist in respect of groups with handicaps (physical, mental and social). R&D in respect of these groups and their special conditions must always have a given place in NBE's research programme. Another group is the immigrants and national minorities. The underlining of these two groups does not imply that a specific R&D niche should be created for these groups in educational research, simply that constant attention should be devoted to the consequences to these groups of any decisions in the field of educational policy.

NBE, together with various providers of educational services, is responsible for promoting a development towards full accessibility to the handicapped in the educational field. The education system should create the necessary conditions for active participation in working life, and the life of our society as a whole. It must also promote the creation of equal conditions as between individuals and groups in society. Demands in respect of equality entail that education and training of various kinds must be available, in both content and form, to individuals and to groups.

Educational reforms during the 1960s and 1970s have made education more available to the handicapped. Our knowledge of needs, and how to adjust to them, has increased. However, previous lags in the educational opportunities open to the handicapped mean that the demand for inputs in this respect is increasing.

Swedish research into the problems of the handicapped is of a high quality by international standards. This is true both in well-defined problem areas such as defective hearing, defective sight, mental retardation and orthopaedic handicaps, and of problems and questions relating to the integration of handicapped persons in the regular school system. Much of this research has been continuously supported within the framework of NBE's R&D grant, and the competency built up in these areas will be an indispensible factor in future research.

Immigrants, and Sweden's national minorities, are also in a special situation, both generally speaking and in the educational context. Obviously, NBE's responsibility relates primarily to the educational issues, but here as elsewhere these cannot be seen in isolation from other questions.

One burning question, as always, is that of language. Swedish research on bilingualism is at present the subject of particular scrutiny. Whether Sweden should be a monolingual or multilingual society is ultimately a political question to which research can never provide an answer. What research can and should do, however, is to clarify the consequences of the one policy or the other, and to expand our knowledge of the importance of language for the development of the individual intellectually, emotionally and socially. Language is one of many important research areas that affect immigrants. Other fields are concerned with the paths taken by immigrant children through the education system, where there are now clear signs that the problems encountered by Swedish students in relation to job opportunities etc., however great these may be, are still more marked in the case of immigrant students.

The second observation that should be made concerns the methods by which different research problems can be tackled. One consequence of the clearer linkage between research and long-term planning is a more long-term approach in research work itself. The long-term perspective also relates to what effects education has for the individual and for society, and to what effects various conditions in society have on teaching in the schools. Apart from the necessity of timewise planning of research, research must be built up in such a way that information can be obtained from different types of data bases on individuals who are currently in different parts of the education system, or conceivable future participants in education. Carefully planned and constructed data bases will thus be an important source for both one-off studies and series over time. This will demand resources. A still more decisive factor

than the economic resources, however, is that such research planning presupposes collaboration between different (educational) authorities, and between different types of research-performing and research-financing bodies.

An individual statistics project was built up in Göteborg in collaboration with Statistics, Sweden and covering individuals born in 1948 and 1953. It has proved an invaluable source for studies of the long-term effects of education. A corresponding basis of individual statistics is now being built up in collaboration between NBE, Statistics Sweden, and the National Swedish Board of Universities and Colleges (although so far financed mainly by NBE).This general data base, in combination with others already built up or in process of construction, on the bases of more specified questions, or in more geographically delimited areas, constitutes an essential basis for continuous information gathering. Data bases in this sense, however, require constant attention. We also have to take into account the risks from the standpoint of integrity involved in the construction of individual data bases. Information has to be gathered in a continual balancing act between the needs of education and research for information and the individual's self-evident right to personal integrity.

A third observation concerns the entire previous discussion of research areas. Every systematization involves simplification. Just as every piece of research in a given area affects in some sense all forms of education, so every research input involves to a greater or lesser extent questions in each of the areas mentioned. The assignment of current and planned research to a specific problem area simply indicates the emphasis. It is, however, one of the characteristics of research that it should be cross-disciplinary. Work that starts from one question can very well lead to quite different questions. In this sense, too, research means taking risks.

## The research planning organization

### External organizational factors

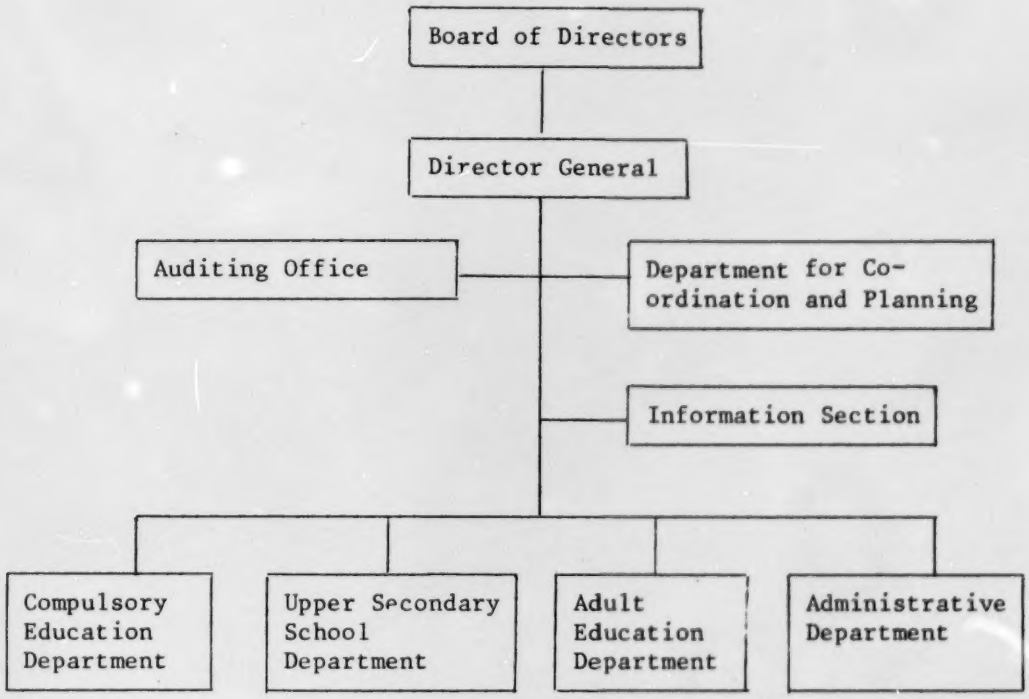
A new state school administration came into force as from July 1, 1982. It consists of NBE and the 24 County Boards of Education. The distribution of responsibility between them as regards research planning is that NBE carries the central responsibility for research, certain central development work, and R&D information.

The reorganization of the state school administration introduced the following distribution of decision-making and responsibility for research planning within NBE:

- The Board of Directors decides on the thrust of research
- The Director General decides, after discussion by the executive board, on the content of NBE's research programme
- The departments for Compulsory Education (O), Upper Secondary School (G) and Adult Education (V) are responsible for producing bases for the planning of their respective needs as regards research, central development work and R&D information.

- The Department for Coordination and Planning is responsible for coordinating the content of the research programme and preparing cross-departmental research, carries responsibility for grants, including the administration of funds, and produces bases for the decisions of the Board of Directors and Director General concerning the research programme.

Figure 2. The Organization of the NBE (from July 1st 1982)




## Activities

As already mentioned, NBE's research programme has to cover research, central development work and R&D information. NBE also has an expressed responsibility for follow-up and information in respect of regional and local development work. The transfer of responsibility and resources for development work from NBE to a regional grant has reduced NBE's direct influence over the planning of development work. However, NBE's responsibility for coordination and follow-up includes an obligation to monitor that development work is performed in accordance with the intentions of Parliament's decision. This monitoring relates primarily to the general thrust of development work, and to ensuring that such work covers all questions relating to the schools.

Research planning thus covers more than just the research assigned to universities and centrally performed development work. To summarise,

NBE's research planning covers the following activities:

- o planning and follow-up of research, and information on this
- o planning (implementation) and follow-up of central development work, and information on this
- o follow-up and information on regional and local development work, and
- o collaboration and consultation with other social and sectoral bodies on matters relevant to research planning.

The concept of follow-up covers responsibility for ensuring that the results of research and development work are utilized in school activities, in NBE's own daily and long-term work, in the practical daily work of the schools, and in adult education.

The relationships between research planning activities and the distribution of responsibility between different bodies can be summarized as follows:

Phase of activities

| Activities | Initiation, planning | Implementation | Follow-up | Financing |
|---|---|---|---|---|
| Research | NBE/CBE[1)] | Post-secondary colleges | NBE, post secondary colleges | NBE |
| Central development work in various fields | NBE/CBE | (NBE) | NBE | NBE |
| Regional development work | NBE/CBE | CBE/LEAs[2)] | | |
| Local development work | LEAs | LEAs | LEAs, CBE | CBE, LEAs |
| R&D information | NBE | NBE, post-secondary colleges, CBE, LEAs, publishers | NBE | NBE, CBE |

1) CBE = County Boards of Education

2) LEAs = Local Education Authorities

## The role of different bodies in research planning

### NBE

Board of Directors

By the terms of the Instructions for the state school administration, the Board of Directors decides the thrust of work on long-term and general planning, and of inputs in school research.

The clear linkage between research and long-term planning emphasized by the Government Bill of 1980 is here further concretized. Starting from this fact, the NBE Board of Directors has decided that research questions should be dealt with by the Board in its entirety. The Board's handling of research questions, and the postures it adpots, are an integral part of its overall posture to long-term development in its field of responsibility.

In its work on the thrust of both general planning and research planning, the Board will concern itself with an overall setting of priorities for research requirements in the school sector. This priority ranking will be part of the research policy programme the Government is to submit to Parliament every third year. It will be possible, thanks to the composition of the Board, to give the research requirements of particular urgency in the educational sector a broad anchorage in social development as a whole. Conversely, the closer linkage between research and long-term planning will make research and its results natural parts of the bases to central Government, concerning which the Board has to decide.

NBE's internal work

The new organization presupposes that each department should have a competency covering all the research fields with which it is concerned. Such competency shall include a knowledge of relevant Swedish and international research, the follow-up of research results and experiences, analyses of research problems, and the identification of researchable questions. It shall also cover contacts with regional and local development work, and its follow-up, in respect of both an evaluation of the effects of the altered conditions on which this work is performed, and the utilization of experiences and results from development work in research planning. This responsibility is an active one. The work of the departments in preparing material and maintaining contacts must reflect a high degree of coordination and overview.

A coherent research programme, however, has to be related to the entire state school administration. Coordination and coherent judgements are more than the sum of individual components, or more than a summation of the research projects devised as relevant for different sectors of education individually.

Programme: "Research"

Within NBE, research planning is therefore coordinated in a single programme: "Research". The operative responsibility, i.e. the work of preparation, rests with the Research Division in the Department for Coordination and Planning, and with the R&D officers in departments O, G and V jointly, in accordance with the distribution of decision-making and responsibility described above.

R&D is the responsibility of the Department for Coordination and Planning, and the departments as a whole. In the latter, all relevant authorities are involved. Questions relating to the general frameworks for research planning, as specified by the Board of Directors, decision concerning thrust, and the Director General's decisions on content, are handled by the head of the Department for Coordination and Planning, the heads of departments, and the above-mentioned research and R&D officers jointly.

Information and documentation

NBE's responsibility for the spread of information and use of results involves a responsibility not only for R&D information but also for information concerning the school system as a whole. As already mentioned, the frameworks for its responsibility regarding information have been broadened. R&D information is naturally an important component of research planning, but the school system's information requirements cover considerably more than this. There is a need for other information from NBE, and information to NBE from other authorities and bodies.

An information and documentation system is under construction within NBE. This work is currently being pursued within the framework of a special project. The objectives for an improved supply of information have been established.

- NBE, as the responsible authority for educational research in Sweden, should have the self-evident responsibility for a smoothly functioning supply of information to different groups of users in the school world.

- NBE, by overriding and coordinative measures, should try to ensure that the network of information-supplying units functions as a whole.

- NBE should acquire an instrument, an I&D function, within its own system that will make it easier for those holding different posts in the state school administration to keep themselves informed concerning educational and other research of importance in the educational sector, and concerning central, regional and local development work. This I&D function should also make it easier for rapporteurs and executives to quickly obtain other bases for decisions, particularly in the context of long-term planning and evaluation. The I&D function should also provide services for external users of information on research, and on the authority itself.

The County Boards of Education

Through the new grants, these boards have acquired a responsibility for the distribution of resources to local development work, and to start development. Their responsibility, however, is not restricted to handling these funds. They are also required, through their supportive and stimulative function, to take considerable responsibility for the general thrust of local development work, monitor that important questions are dealt with and illustrated in that development work, and actively promote the feedback of results, among other things as a basis for NBE's research planning.

Short-term operative planning

The work of the state school administration is regulated in its annual operative planning. Development work will be an important part of this. Links will always exist between local development work and NBE's research planning in the form of direct contacts between NBE and the municipalities, and via the follow-up work of the County Boards of Education.

## The Universities

Research in the school sector is to be performed at the universities. The experience gained during the 20 years in which NBE has had an R&D grant at its disposal will provide a valuable starting-point for future collaboration. This collaboration must be based on a continuous dialogue between the commissioners of research and the researchers themselves. This dialogue is necessary for a mutual understanding of each others' conditions. Through this interplay, sectoral research can help to broaden the problem range of discipline-oriented research, while the latter contributes to a deepening of theories and methods in sectoral research.

Through the reorganization of the state school administration, a general strengthening of NBE's research competency is taking place. The scientific basis for educational research is being broadened. The concept of a project in its present markedly limited sense is to be replaced by theme-oriented research of a more richly varied kind, in collaboration between NBE and the representatives of research. It will be possible to include, within one and the same commission, both basic research and the assistance of researchers in producing a basis that can be more directly integrated with NBE's day-to-day and long-term work. It will also be possible to commission research from several institutions/researchers, who will work jointly, but from the premisses of their respective disciplines, within a given problem area.

Researchers will be co-planners in NBE to a greater extent than previously. In this function researchers, in collaboration with NBE, should be able to further the research activity in various ways. The collaboration of researchers means that NBE is acquiring a scientific competency that it should be possible to use in the long-term planning which it will now handle. This competency involves both methodological know-how and a knowledge of scientific development. The collaboration of researchers in the intended sense will also increase the competency available in NBE as to act as a commisioner of research, a competency necessary for any long-term research to give the intended results. NBE will thus be in a position to make demands on the research community. And as co-planners the researchers will be able to assert their demands vis-à-vis the sectoral authority, all of which will favour satisfactory collaboration.

Collaboration with researchers and the universites will then be able to take four main forms:

- The self-evident collaboration involved in the commissioning of research projects.

- The direct attachment of researchers for longer or shorter periods to work at NBE, in accordance with the principle of co-opted researchers discussed in a Government Bill.

- The procedure for the co-opting of professors can be applied, i.e. NBE staff with research competency can be appointed to a university for part of their time with the authority.

- The establishment of a special research council attached to NBE's research planning.

The Research Council

A Research Council is to give advice on NBE's research planning. Its task will be to assist NBE in its research planning by discussions of the long-term content of the research programme, and by participation in analyses of researchable questions in the educational sector. The Research Council should also participate in the feedback to NBE of essential aspects of international scientific development in the subjects represented.

The Research Council consists of seven members, who are to reflect a broad scientific competency, with representatives of the social sciences, the humanities and science. Terms of office will be of three years, with a successive renewal every third year. The council is attached to the Department for Coordination and Planning. The council's working procedures involve essentially 1) participation in NBE's research planning, and 2) participation in conferences, seminars and symposiums.

The Central Planning Council

On January 1 1982, a Central Planning Council was established for cooperation between the school system and the labour market. This council will deal with questions of importance for the planning of research on, above all, cooperation between the schools and working life. Members of the council include representatives of the authorities and organizations with which NBE has to collaborate and consult. Questions concerning NBE's planning programme, its thrust and concrete content - mainly in respect of the research field "the schools and working life" - should therefore be handled and prepared on a fairly regular basis by the Central Planning Council. It will be a question primarily of a mutual exchange of information on measures that have been taken by the authorities/organizations concerned, and are relevant to research issues.